

Work Order ID 138414

Tuesday, October 27, 2015 11:28:03 AM

138414

Page 1

Item ID: 646.9701

Revision ID:

Item Name: Cutter Sub Assembly

Start Date: 11/17/2015 Start Qty: 2.00

Required Date: 11/17/2015 Req'd Qty: 2.00

Reference:

Accept

N9000040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Customer:

2

2

Approvals: Process Plan: ML5 Date OCT 29 2015

Tooling:

Date:

Run Start *NR1*

QC: Date: SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
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646.9700	C (ECN)
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110	Pick Kit	0.00
-----	----------	------

110

Packaging

Memo

0.00

Packaging

DAS
27
9-89

NOV 04 2015

120		0.00
-----	--	------

120

Small Fab

Memo

0.01

Small Fab

Assemble as per dwg and apply loctite 598 on all faying surfaces per note.

A/R RTV LOCTITE 598: 133436exp. date: 07/17

2X

10/11/04

P10

130	QC5- Inspect part completeness to step on W/O	0.00
-----	---	------

130

QC

Memo

0.00

Quality Control

2

DAS
38
9-89

NOV 05 2015

DQA:

Date: 15/11/23



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date: 15/11/18

Work Order update only ☐

Work Order: 138414		DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. 646.9701		Rework ☒		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. 15-5447		Scrap ☐		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
		Use-as-is ☐		Thermoforming ☐	Finishing ☒	Rec/Store/Packaging ☐	Other ☐		
		Suspected Unapproved ☐		Large Fab ☐	Composite ☐	Supplier ☐			
Date: 15-11-11		Step #: 120		QTY Effective: 2			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition					
Parts Do not align with each other for Assembly Re. Build up due to Primer.				Scrub Bore. 646.9711 to Remove Primer.				Completed By DAS 30 NOV 11 2015 9-89 Lead hand / Supervisor Approval Verification DAS 9 9-89 15-11-11 QC / QA Coordinator Approval DAS 9 9-89 15-11-11	
Root Cause				FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☒				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☒	OTHER: Primer Build up							
Misidentified ☐	Past Due ☐								

Work Order ID 138414

Tuesday, October 27, 2015 11:28:03 AM

138414

Page 2

Item ID: 646.9701 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Cutter Sub Assembly
Start Date: 11/17/2015 Start Qty: 2.00 ***2*** Cust Item ID:
Required Date: 11/17/2015 Req'd Qty: 2.00 ***2*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Identify as per dwg & Stock Location: <u>CC/K012</u>	0.00							
140									
Packaging	Memo	0.00				2X	DAS 28 9-89	NOV 05 2015	
Packaging	***IDENTIFY AS PER IAW MPP-120***								
150	QC21 - Final Inspection - Work Order Release	0.00							
150									
QC	Memo	0.00							
Quality Control									

MCS NOV 06 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube ☐</td> <td style="width: 15%;">Cross tube ☐</td> <td style="width: 15%;">Water Jet ☐</td> <td style="width: 15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																		
Description Work Order Deviation				Disposition																					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐				OTHER : ☐			

Picklist Print

Tuesday, October 27, 2015 11:28:02 AM

Page 1

Work Order ID: 138414

138414

Parent Item: 646.9701

646 9701

Parent Item Name: Cutter Sub Assembly

Start Date: 11/17/2015

Required Date: 11/17/2015

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A 12.08.13 NEW ISSUE DD VERF:JFS

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
646.9710 *646 9710* Body		Manufactured	No			110	Each	23.0000	1	2			BAS 27 9-89

Location	Loc Qty	Loc Code
CCK013	23	
127781	6	
128805	10	
130854	3	
98918	4	

2

646.9711
646 9711
Blade

Manufactured No

110 Each 64.0000 2 4

BAS
27
9-89

Location	Loc Qty	Loc Code
CCK013	64	
128367	25	
129676	39	

4

MS21042L08

Purchased No

110 Each 441.0000 6 12

NOV 04 2015

MS21042L08
Nut

Location	Loc Qty	Loc Code
CA	101	
m129682	101	
GA	204	
m133134	204	
ST304	136	
m128401	102	
m128429	3	
m131317	26	
m132930	5	

12

15/11/04

DAS
36
9-89

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : ☐					

Picklist Print

Tuesday, October 27, 2015 11:28:03 AM

Page 2

Work Order ID: 138414

138414

Parent Item: 646.9701

646 9701

Parent Item Name: Cutter Sub Assembly

Start Date: 11/17/2015

Required Date: 11/17/2015

Start Qty: 2.00

Required Qty: 2.00

MS27039-08-19

Purchased

No

110

Each

479.0000

6

12

MS27039-08-19

Screw

DAS
36
9-89

15/11/04

Location

Loc Qty

Loc Code

cck007a

100

m133077

100

GA

186

m132930

186

ST273A

164

m131317

164

ST281

29

m131264

29

12

DAS
36
9-89

15/11/04

NAS1149FN832P

Purchased

No

110

Each

2,160.000

12

24

NAS1149FN832P

Washer

Location

Loc Qty

Loc Code

GA

346

125268

346

ST260a

500

M133316

500

ST267

393

125268

100

M133284

293

st268

921

M130388

921

29X

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____			
Misidentified ☐		Past Due ☐					

APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

04559

SHEET 1 OF 1

DWG NO. 646.9700

REV: C

PREPARED BY D. MEJIA

DATE: 06/11/2014

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: CUTTER SUB ASSY

APPROVED BY:

ENGR

MFG

QC

EFF.

NEXT ORDER

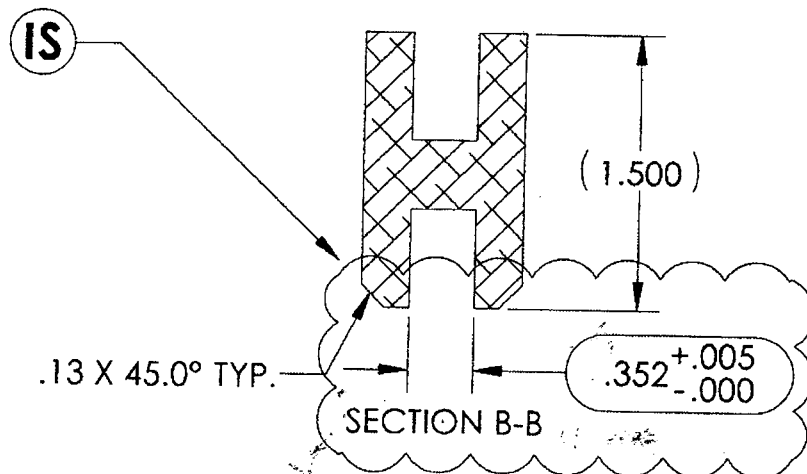
TRANSACTION CODES (TC):
A-ADD
R-REVISE
C-CREATE
D-DELETE

REASON: ADDED DIMENSION AND TOLERANCE

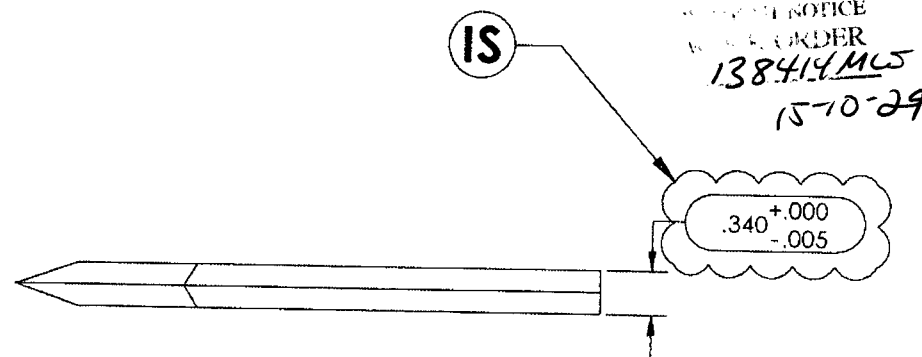
ECR:

D-14-05

SHEET 2, ZONE D7 IS:



SHEET 5, ZONE B5 IS:



DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

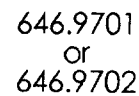
CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

REVISED		DATE		APPROVED	
REV.	DESCRIPTION				
	LAST PROTOTYPE REVISION: P20				
N/C	INITIAL RELEASE	03/27/99		N/C	
A	INCORPORATED ECH 02744, 0308N, 03912	06/06/13		P. BRAVO	
B	INCORPORATED ECH 03367	07/03/13		P. BRAVO	
C	INCORPORATED ECH 04039	09/09/13		P. BRAVO	



① MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12

② FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III,
CLASS 2, COLOR BLACK;
PRETREAT PRC-DESOTO PR-148 ADHESION PROMOTER;
PRIME IAW MIL-P-23377 J TYPE I CLASS N: 1-2 MIL MAX

③ MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS

④ FINISH: PRIME IAW MIL-P-23377 J TYPE I CLASS N; 1-2 MIL MAX

5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED

6. IDENTIFY IAW MPP-120

⑦ APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY

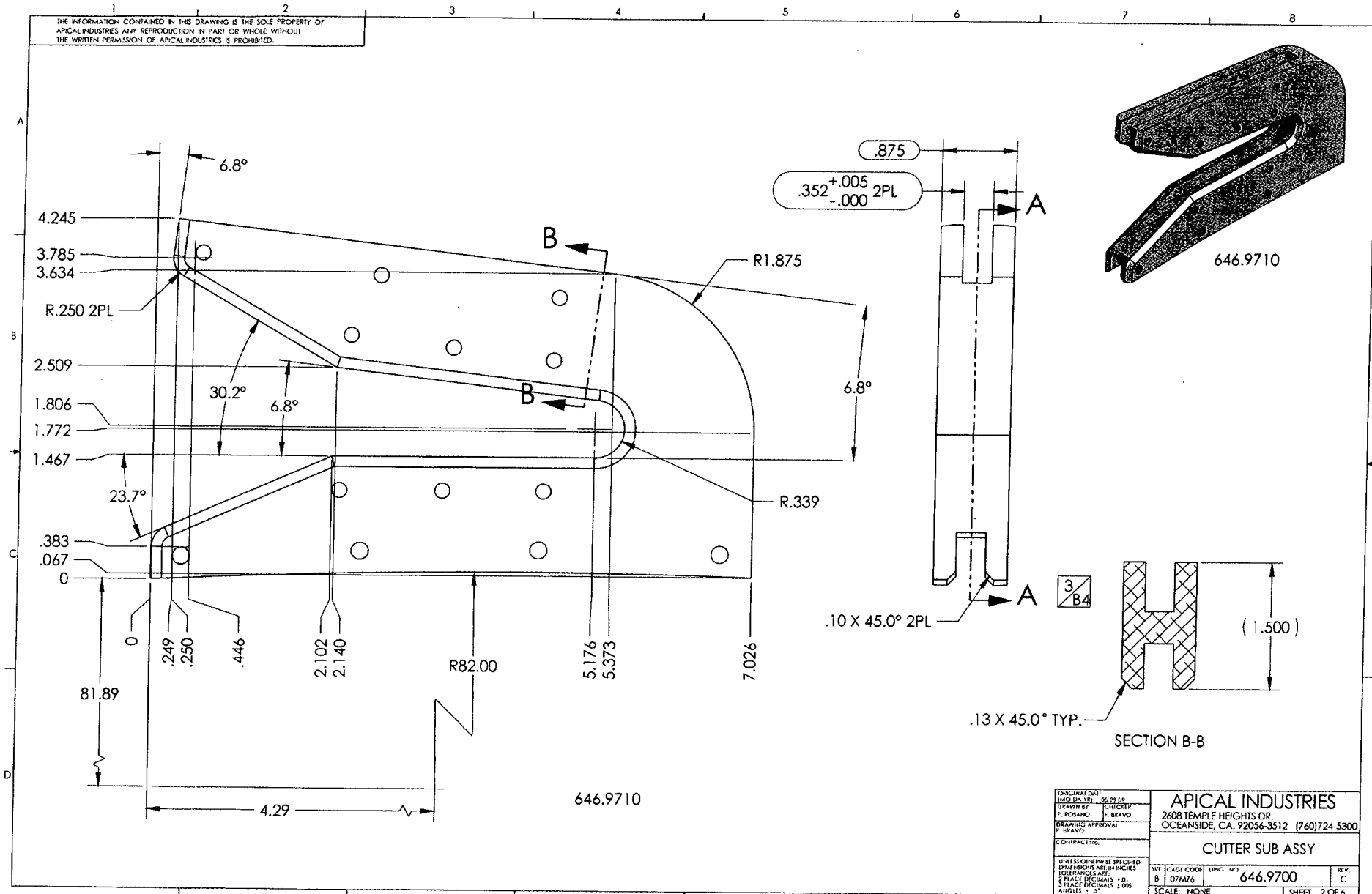
⑧ CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE

⑨ ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

04550

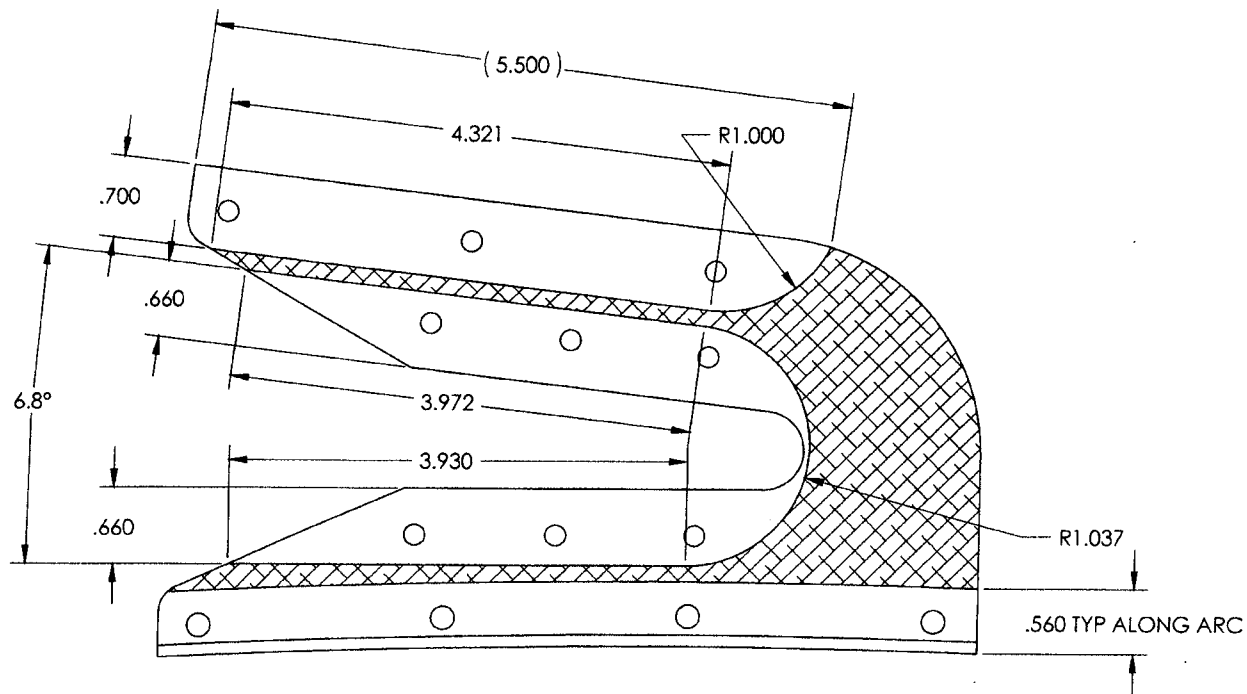
[illegible]

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ORIGINAL DATE: 05-28-88 DRAWN BY: CHICLET P. POSADA DRAWING APPROVAL: F. BRAVO CONTRACTING:		APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DECIMALS ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		WT: 07M26 SCALE: NONE	REV. C 646.9700 SHEET 2 OF 6

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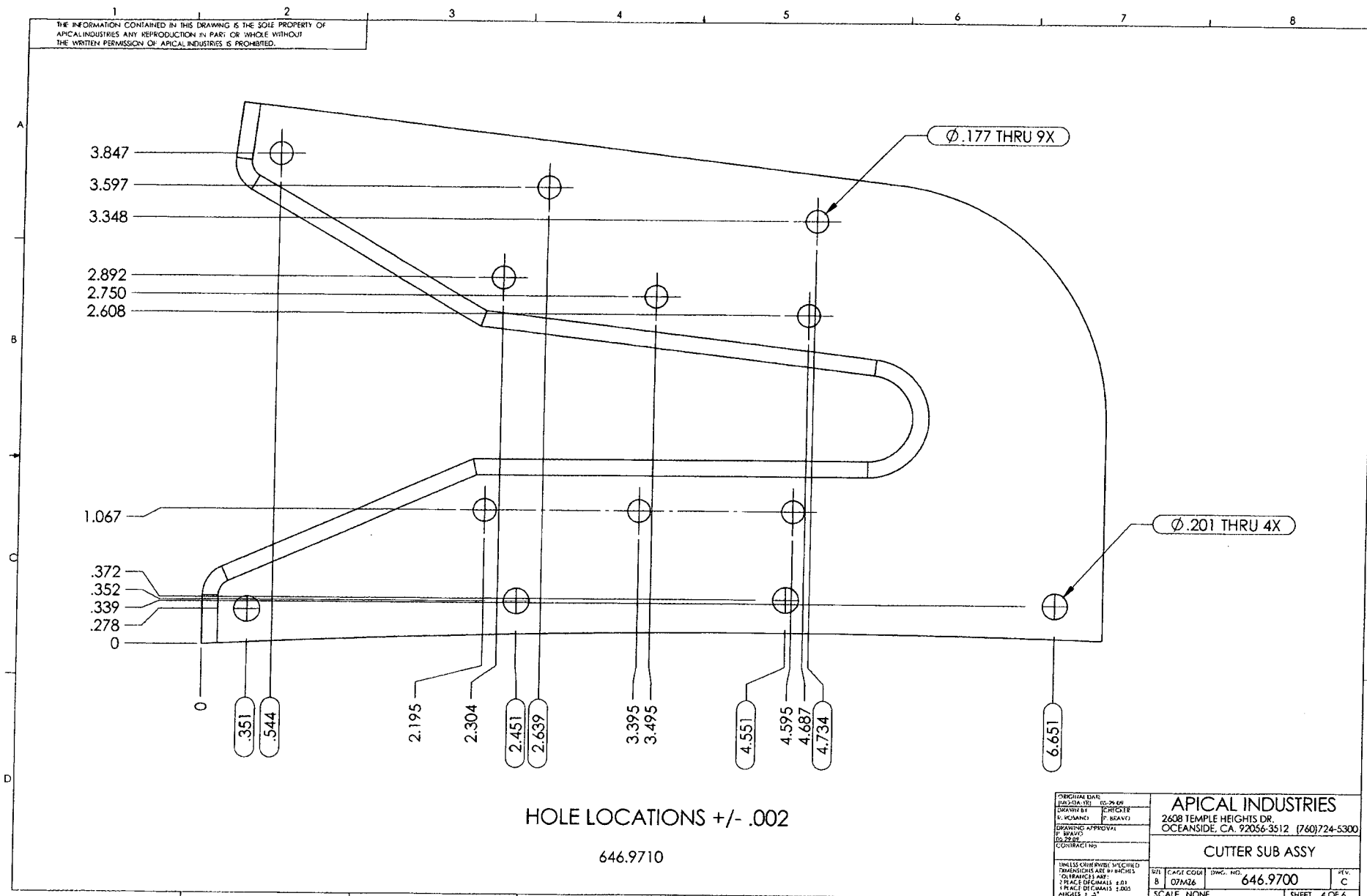
SECTION A-A $\frac{2}{C6}$

646.9710

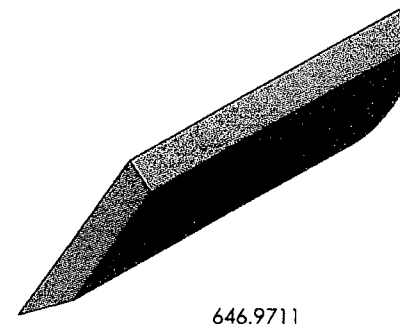
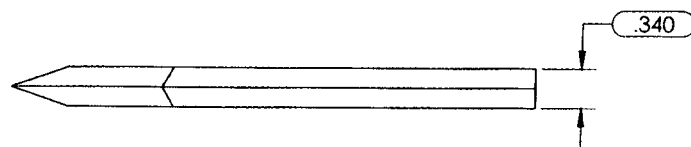
ORIGINAL DATE 01/24/87		DESIGNED BY P. ROSARIO		CHECKED BY P. ROSARIO	
DRAWN BY P. ROSARIO		APPROVED BY P. ROSARIO		DATE 01/24/87	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS 3 PLACE DECIMALS .005 ANGLES .5°					
SHEET	CAGE CODE	UNCL. NO.	REV.		
B	07M26	646.9700	C		
SCALE NONE			SHEET 3 OF 6		

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300
CUTTER SUB ASSY

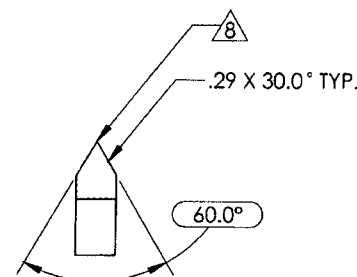
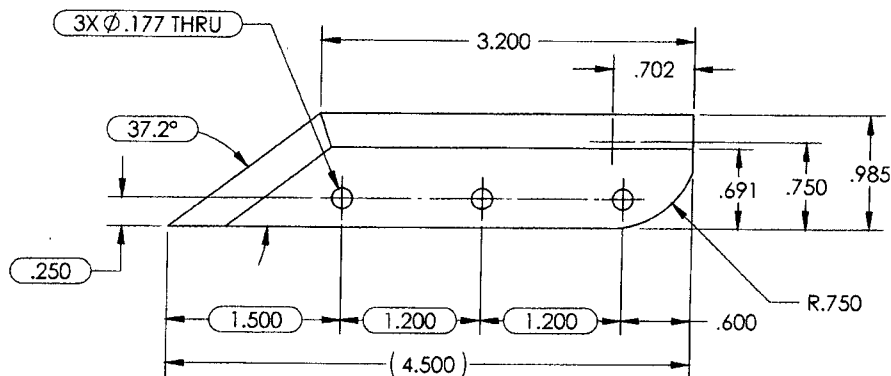
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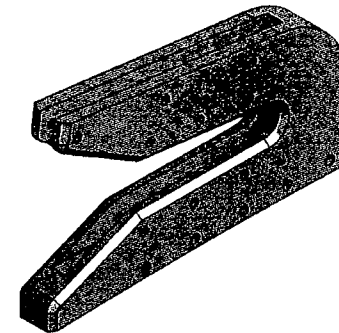
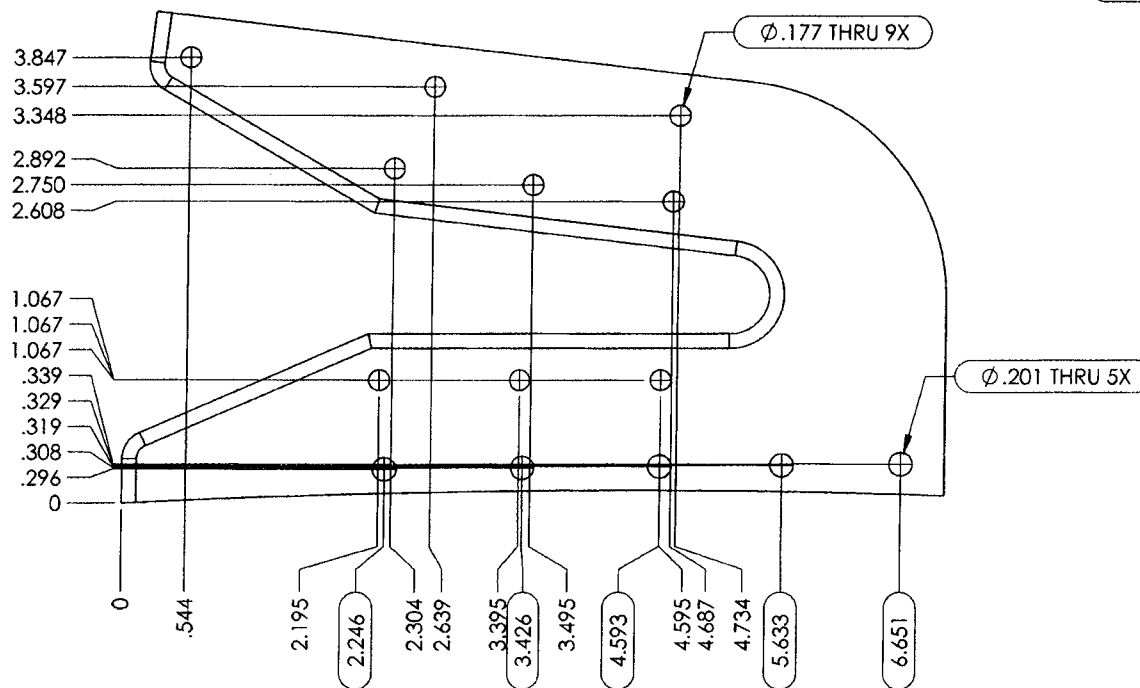
646.9711



646.9711

ORIGINAL DATE: 02-29-09		APICAL INDUSTRIES	
DESIGNED BY: CHUCKER		2608 TEMPLE HEIGHTS DR.	
R. HICKMAN		OCEANSIDE, CA 92056-3512 (760) 724-5300	
DRAWING APPROVAL: P. BLAVO		CUTTER SUB ASSY	
02-29-09		SCALE: NONE	
C/CONTRACTING:		SHEET 5 OF 6	
UNLESS OTHERWISE SPECIFIED:		SHEET 5 OF 6	
DIMENSIONS ARE IN INCHES		SHEET 5 OF 6	
TOLERANCES ARE:		SHEET 5 OF 6	
2 PLACE DECIMALS ± .01		SHEET 5 OF 6	
3 PLACE DECIMALS ± .005		SHEET 5 OF 6	
ANGLES ± .5°		SHEET 5 OF 6	

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646.9712 $\triangle 9$

646.9712

ORIGINAL DATE: 05-29-09 (MO, DAY, YR)		APICAL INDUSTRIES	
DRAWN BY: J. ROSARIO		2608 TEMPLE HEIGHTS DR.	
CHECKED BY: P. BRAVO		OCEANSIDE, CA 92056-3512 (760) 724-5300	
DRAWING APPROVAL: P. BRAVO 05-29-09		CUTTER SUB ASSY	
CONTRACT NO.		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS $\pm .02$ 3 PLACE DECIMALS $\pm .010$ ANGLES $\pm .5^\circ$	
SHEET NO. 8	CAGE CODE 07M26	FIG. NO. 646.9700	REV. C
SCALE: NONE		SHEET 6 OF 6	